PaperCut Sharp OSA Manual

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This manual covers the Sharp OSA embedded MFD setup. For general PaperCut MF documentation, please see the PaperCut MF manual.

1 Overview

This manual provides an overview of the installation, configuration and operation of PaperCut's embedded software MFD (Multi-Function Device) solutions. Today's MFDs are smarter – they have touch screens and offer the ability to run applications directly on the device. The goal of PaperCut Software's embedded MFD solution is to leverage these smart devices and to provide walk-up copier users with the same set of rich application features provided in the print control area. These include:

- Secure access to device functions
- End user authentication including integration with single sign-on environments
- Monitoring and control of photocopying, scanning, faxing and on-device printing (quotas, charging, allocation and logging)
- Allocation of copying, scanning, faxing and on-device printing to accounts/departments/cost-centers/projects
- Ability to locate shared accounts via select-from-list, keyword search or manual code/pin entry
- Release jobs from a hold/release queue (Secure & Find Me Printing)
- Group based access control: Limit access to color copying or access to the device as a whole to certain user groups.

Highlights of the embedded solution include:

1.1 Consistency:

The embedded solutions are developed in-house by the PaperCut Software development team. This ensures that the copier interface is consistent with the workstation print interface, meaning users only have to learn one system.

1.2 Integration:

PaperCut is a single integrated solution where print, internet and copier control are all managed in the one system. Users have a single account and administrators have the same level of reporting and administration for all services. The embedded solution interacts with the PaperCut server using a Service Oriented Architecture (SOA) and web services based protocols.

1.3 Rate of development:

PaperCut is developed under a release-often policy where new features are made available to users as soon as they are complete. Unlike hardware based solutions, new versions can be delivered to users regularly as software updates.

1.4 Vendor Neutral:

PaperCut remains true to its vendor neutral stance. All embedded solutions are equal and support all server OS's including Windows, Linux and Mac.

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1.5 Security:

A large percentage of PaperCut's user base is in Education environments where security is important. All embedded solutions are developed with security in mind. Where security objectives can't be satisfied, any deficiencies are fully disclosed.

2 Installation

This section covers the installation of the PaperCut embedded application for Sharp OSA. The embedded application will allow the control, logging and monitoring of walk-up off-the-glass copier usage (for information tracking network printing see the PaperCut user manual).

2.1 Requirements

Ensure that the following points are checked off before getting started:

- PaperCut is installed and running on your network. Please see the 'Introduction -> Quick Start Guide' section of the PaperCut user manual for assistance.
- Have available the IP address of the system running PaperCut (e.g. the print server).
- Ensure the Sharp MFP is supported by PaperCut, that is:
    - Has a touch-screen LCD interface
    - Supports OSA 1.1 or higher (excluding AR series), however Sharp OSA 3.0 or higher is recommended. Please see your hardware vendor for details.
- Ensure that the Sharp MFD is connected to the network.
- Have available the IP address of the Sharp MFD. It is recommended that the MFD is configured with a static IP.
- NOTE: Not all devices support USB based card readers. See 2.2

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2.2 Support for USB Card readers

The Sharp MFP range supports common keyboard emulating USB card readers. Card readers from RFIdeas, Elatec and Magtek are known to work. Other keyboard emulating reader must be tested for compatibility.

Most recent Sharp MFP support USB based card readers for authentication. However some of the older devices do not support USB card readers. The devices below can run the PaperCut OSA application but do not support USB card readers:

- MX-350 series
- MX-M450 series
- MX-M550 series
- MX-M620 series
- MX-M700 series

It is recommended to check with your Sharp dealer to confirm card readers are supported on a particular model.

2.3 Networking/Firewall Configuration

Ensure that your networking/firewall configuration allows:

- Inbound connections from the Sharp devices to the PaperCut server on port 9191.
- Outbound connections from the PaperCut server to the Sharp device on port 80.

Note: The Windows Firewall does not block outbound connections, so no configuration is required.

2.4 Sharp Device Compatibility

PaperCut's embedded solution is designed to support any Sharp device supporting **Sharp OSA 1.1 or newer** that have a touch-screen LCD interface.

The following table is an indication of the supported models, although newer models may not be listed here. If you are unsure as to whether Sharp OSA is supported on your model, please ask your Sharp representative or reseller.

Model Name
Japan
MX-M264, MX-M314, MX-M350, MX-M350F, MX-M350N, MX-M354N, MX-M450, MX-M450F, MX-M450N, MX-M464, MX-M550, MX-M564N, MX-M620, MX-M623, MX-M700, MX-M753N, MX-M850, MX-M950, MX-M1100, MX-2000F, MX-2300FG, MX-2300G, MX-2614, MX-2700FG, MX-2700G, MX-3114N, MX-3500FN, MX-3500N, MX-3501FN, MX-3501N, MX-4500FN, MX-4500N, MX-4501FN, MX-4501N, MX-5500N, MX-6200N, MX-6201N, MX-7000N, MX-7001N
North America
DX-C311, DX-C401, MX-M850N, MX-900N, MX-1100N, MX-230x, MX-2600N, MX-2610N, MX-2614, MX-M264, MX-310x, MX-3100N, MX-C311, MX-3110N, MX-3114, MX-3114N, MX-M314, MX-M350N, MX-M350U, MX-M354, MX-M354N, MX-360x, MX-3610N, MX-M363, MX-B38x, MX-C381, MX-B40x, MX-C401, MX-41xxN Series,

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MX-410x, MX-M450N, MX-M450U, MX-M453, MX-M464, MX-500x, MX-M503, MX-51xxN Series, MX-M550N, MX-M550U, MX-M564, MX-M564N, MX-M620N, MX-M620U, MX-M623, MX-M700N, MX-M700U, MX-M753, MX-M753N, MX-M850, MX-M950, MX-M1100, MX-1800N, MX-2300N, MX-2614, MX-2700N, MX-3500N, MX-3501N, MX-4100N, MX-4101N, MX-4500N, MX-4501N, MX-5001N, MX-5500N, MX-6200N, MX-6201N, MX-7000N, MX-7001N
Other Areas
MX-M264, MX-M314, MX-M350N, MX-M350U, MX-M354N, MX-M450N, MX-M450U, MX-M464, MX-M550N, MX-M550U, MX-M564N, MX-M620N, MX-M620U, MX-M623, MX-M700N, MX-M700U, MX-M753N, MX-M850, MX-M950, MX-M1100, MX-1800N, MX-2300N, MX-2614, MX-2700N, MX-3114N, MX-3500N, MX-3501N, MX-4500N, MX-4501N, MX-5500N, MX-6200N, MX-6201N, MX-7000N, MX-7001N

Configuring PaperCut to use Sharp OSA 3 provides a better graphical user interface, a simplified workflow and more intuitive card reader usage.

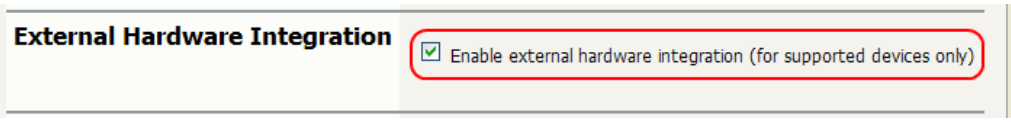
PaperCut makes all attempts to keep the product compatibility information in this manual current. However, we make no warranties, express or implied, with respect to manufacturer's products or the interoperation with the listed PaperCut product(s). We offer 40 day trial versions of PaperCut software to assist you with compatibility testing with your network setup.

2.5 Setup Procedure

The setup procedure requires the user to enter settings in the PaperCut administration interface and also the Sharp Copier's web interface. Please note that the settings will be slightly different for OSA version 3 than older OSA versions.

2.5.1 PaperCut Setup

1. Log in to the PaperCut administration interface using a web browser (e.g. http://papercut-server:9191/admin).
2. Navigate to 'Options -> Advanced' and ensure the option 'Enable external hardware integration' is enabled.



3. Press 'Apply'.

2.5.2 Sharp External Settings for OSA Version 3 (or higher)

1. Please only do these steps if you are running OSA Version 3+, otherwise please follow the steps in appendix C.
2. Log in to the copier's web interface as an administrator using a web browser (e.g.http://copier-ip/).
3. Navigate to 'User Control-> Card Type /Card Reader settings' and ensure that 'User IC Card for Authentication' is unchecked. (If your Sharp device

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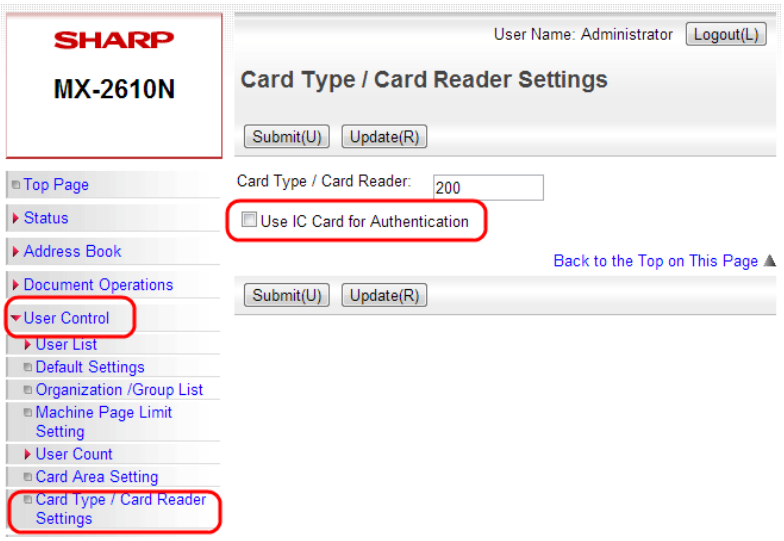
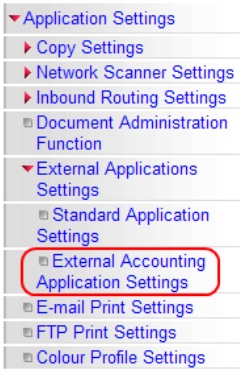
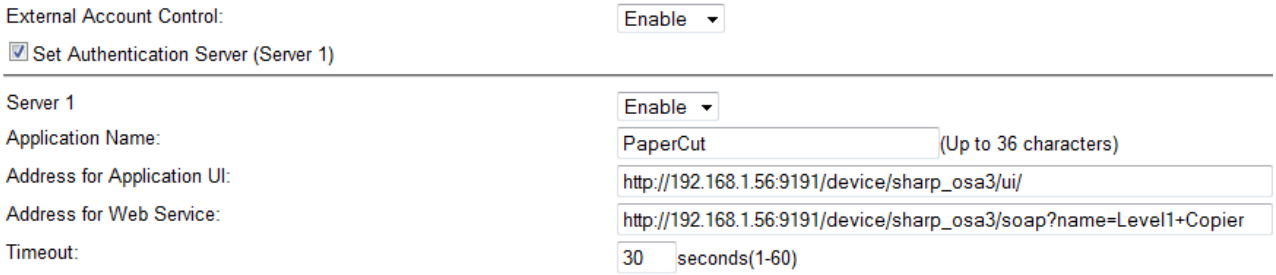
does not have this setting then you can ignore this item)



4. Navigate to ‘Application Settings -> External Applications Settings -> External Accounting Application Settings’. This menu item will only appear if you have Sharp OSA External Accounting installed; if it does not exist contact your vendor for assistance.



5. Change the ‘External Account Control’ option to ‘Enable’.



6. Enable the checkbox titled ‘Enable Authentication by External Server’ or ‘Set Authentication Server (Server 1)’.
7. Enter ‘PaperCut’ in the ‘Application Name’ field.
8. Under ‘Address for Application UI’, enter:
   http://<server-ip>:9191/device/sharp_osa3/ui/
   replacing ‘server-ip’ with the IP address of the PaperCut server

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9. Under ‘Address for Web Service’, enter: http://<server-ip>:9191/device/sharp_osa3/soap?name=Level1+Copier where “Level1+Copier” is the name of the device that will appear in PaperCut. This may be replaced with a custom name, such as a name based on the MFD’s physical location. Using the same name as the copier’s print queue is recommended. **IMPORTANT: Do not use spaces in the device name in the URL. Spaces may be represented by using a plus (+) character.**
10. The timeout value should be set to 30 seconds. This defines how long the copier will wait before an error is displayed if the server is down or unavailable.
11. Press “Submit”, and then press “Reboot Now”. The reboot process will take 30 seconds to 1 minute.

    If you receive an error like “ERROR[5000]: Processing is in motion. This function cannot be executed.” then check the display panel of the device and ensure the “COPY” tab is selected. Other tabs may lock parts of the web admin interface.

2.5.3 Recommended Changes

Users would normally log out of the MFP interface by pressing the logout button. If however the user was to forget and walked away from the device, an inactivity timer would log the user out. The default inactivity timeout is 60 seconds. To improve security in line with best practice, it is recommended to set this timeout to 30 seconds as follows:

1. Log in to the copier’s web interface as an administrator using a web browser (e.g. http://copier-ip/).
2. Navigate to ‘System Settings ‘ -> ‘Operation Settings’
3. Change the 60 sec. *Auto Clear Setting* to 30 seconds.
4. Press *Submit* to apply the changes.

2.5.4 Recommended Service Mode Changes

The Sharp MFP inactivity timeout only triggers by default if the user actually performs a copy. This is not usually what users expect. To change this behavior so that the user will be logged out even if they do not perform any copying the following service mode setting should be change.

To make this setting ask your Sharp service technician to:

- Access Test Simulation 55-03
- Select soft switch 1
- Change bit 5 to 1

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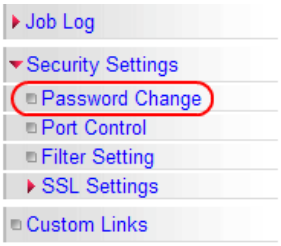
2.5.5 Sharp Miscellaneous Settings

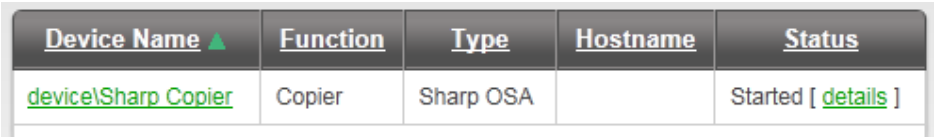
1. If the administrator password has not been changed from the default of 'admin' it is recommended to change it to prevent unauthorized modification of settings. It can be changed via 'Security Settings -> Password Change -> Administrator Password'. Choose a secure password and take note of it.



2. For devices with an external keyboard, please set the "Keyboard priority" to "Soft keyboard" (under System Settings > Operation Settings). Switch the device off and on again after changing this setting.

2.5.6 Confirm Installation

1. Log back in to the PaperCut administration interface and navigate to the Devices tab. After the copier has rebooted a new device will appear in the table with name selected in step #8. The device will have inherited the cost settings from the "[Template Printer]".



Device Name ▲	Function	Type	Hostname	Status
device\Sharp Copier	Copier	Sharp OSA		Started [details]

2. Confirm that the MFD's LCD now displays the PaperCut login screen. **NOTE:** If you are using the PaperCut embedded application for Sharp OSA versions earlier than 3, displays will look differently. Refer to appendix 0.

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2.5.7 Additional Network Security (optional)

The MFP communicates with the PaperCut server over the network (e.g. to authenticate users or release print jobs). To provide an additional level of security, PaperCut may be configured to only allow device connections from a restricted range of network addresses. This ensures that only approved devices are connected to the PaperCut server.

By default PaperCut will allow device connections from any network address. To restrict this to a subset of IP addresses or subnets:

1. Logon to the PaperCut administration web interface at http://<papercut-server>:9191/admin
2. Go to the Options→Advanced tab and find the “Security” section.
3. In the “Allowed device IP addresses” field enter a comma-separated list of device IP addresses or subnets (in the format <ip-address>/<subnet-mask>).
4. Press the “Apply” button.
5. Test the devices to ensure they can continue to contact the PaperCut server.

2.6 Using Swipe Card Readers

Sharp devices support the following keyboard emulating USB card readers:

- Elatec TWN3 prox card readers
- MAGTEK Swipe Reader Model # 21040110
- RF IDEAS AIR ID Enroll Proximity Reader Model # RDR-7081AKU

Other keyboard emulating card readers may work, but should be tested prior to deployment.

To use a swipe card reader for authentication:

1. Connect the reader to a USB port of the device.
2. In the PaperCut administration interface, click the device entry on the ‘Devices’ tab and check the ‘Swipe Card Reader’ option in ‘External Device Settings -> Authentication methods’.

Some card readers might need additional configuration, please see the Advanced Configuration section for details.

2.7 Upgrading to a newer version

The embedded application will be up to date when you upgrade your PaperCut installation, no further action is necessary.

3 Post-install testing

After completing installation and basic configuration it is recommended to perform some testing of the common usage scenarios. This important for two reasons:

1. To ensure that the embedded application is working as expected.

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2. To familiarize yourself with the features and functionality of PaperCut and the embedded application.

This section outlines four test scenarios that are applicable for most organizations. Please complete all the test scenarios relevant for your site.

3.1 Test Preparation

To complete these tests it is recommended to use two test users so that each can be configured differently. These users are:

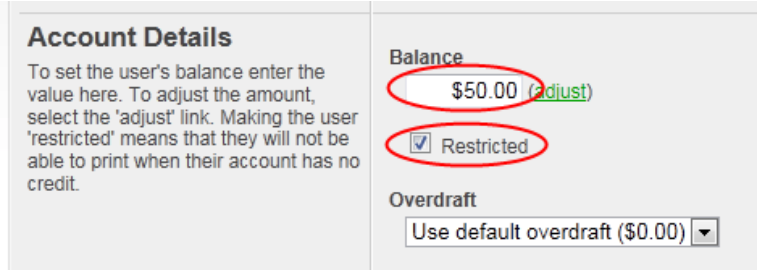
- 'testusersimple' – is used to perform basic copier monitoring and control and to perform print release tests.
- 'testuseradvanced' – is used to perform copier monitoring and control with the account selection enabled (i.e. to charge copying to accounts/departments/cost-centers/etc).

To setup these users in PaperCut:

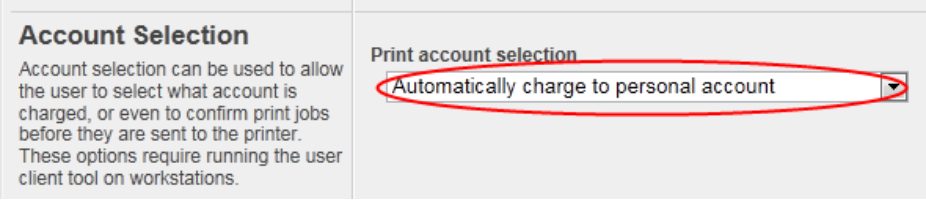
1. Create the 'testusersimple' and 'testuseradvanced' users in your Active Directory or LDAP directory.
2. Login to the PaperCut's admin web interface
3. Go to the "Options->User/Group sync" page and press "Sync Now".
4. Once the sync is complete, the users will be added to PaperCut.

The next step is to configure the users. To configure 'testusersimple':

1. In PaperCut, select the "Users" tab
2. Select the 'testusersimple' user.
3. Set the user's balance to $50.00 and verify the account is set to "Restricted".


Account Details
To set the user's balance enter the value here. To adjust the amount, select the 'adjust' link. Making the user 'restricted' means that they will not be able to print when their account has no credit.
Balance
$50.00 (adjust)
Restricted
Overdraft
Use default overdraft ($0.00)

4. Verify that this user is set to "Automatically charge to personal account" in the "Account selection" options.


Account Selection
Account selection can be used to allow the user to select what account is charged, or even to confirm print jobs before they are sent to the printer. These options require running the user client tool on workstations.
Print account selection
Automatically charge to personal account

5. Press the "OK" button to save.

To configure 'testuseradvanced':

1. In PaperCut, select the "Users" tab

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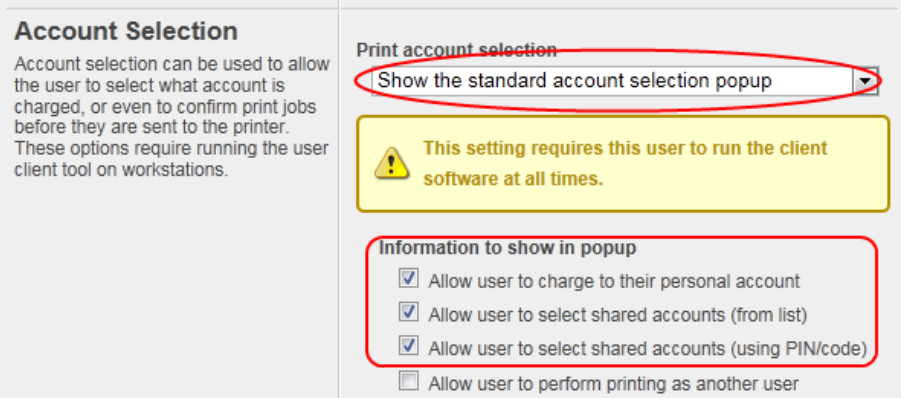
2. Select the ‘testuseradvanced’ user.
3. Change the “Account Selection” option to “Standard account selection popup” and enable all the account selection options.


Account Selection
Account selection can be used to allow the user to select what account is charged, or even to confirm print jobs before they are sent to the printer. These options require running the user client tool on workstations.
Print account selection
Show the standard account selection popup
This setting requires this user to run the client software at all times.
Information to show in popup
Allow user to charge to their personal account
Allow user to select shared accounts (from list)
Allow user to select shared accounts (using PIN/code)
Allow user to perform printing as another user

4. Press OK/Apply to save the changes.
5. If any user settings were modified press the OK/Apply button to save.

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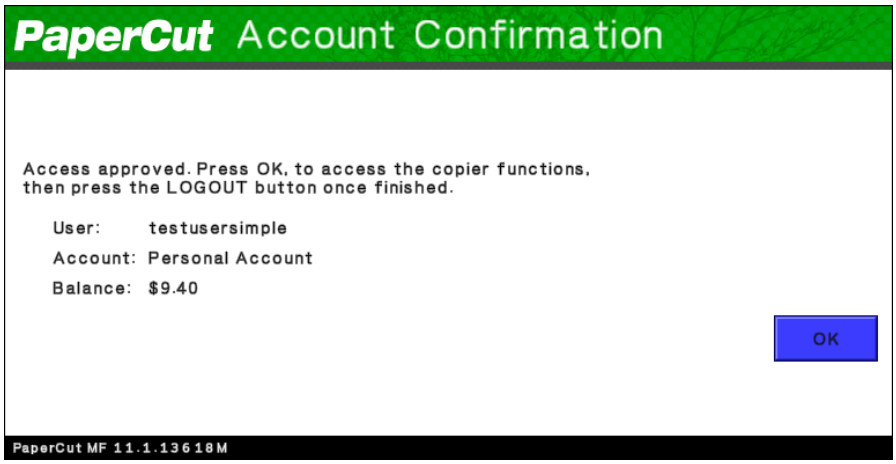
3.2 Scenario 1: Standard copying

Standard copying involves monitoring/charging printing to a user's personal account. This is the most commonly used for student printing or basic staff monitoring. Users can also be configured for unrestricted printing, which is commonly used for staff/employee use.

NOTE: If you are using the PaperCut embedded application for Sharp OSA versions earlier than 3, displays will look differently. Refer to appendix 0.

At the photocopier:

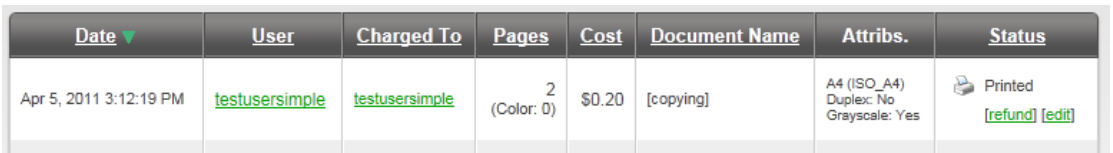
1. Log in using username and password as 'testusersimple'.
2. At this point the copier will be enabled for usage (if the release station is also enabled, then select "Use Copier Functions" to enable the copier).
3. Follow the onscreen instructions and perform some test copying (i.e. press "OK" then perform a copy as normal).



4. Once completed copying press the "LOGOUT" button on the device to return to the Login screen.

In the PaperCut administration interface verify that the copier activity was recorded and the user's account was deducted. This can be done as follows:

1. Log in to the PaperCut administration interface.
2. Select the device from the "Devices" tab.
3. Select the "Job log" tab. This will list all recent copying activity on the copier. The copying just performed as the test user should be listed. Verify the details of the copy job that was just performed.



4. Click on the user's name in the user column to view the user's account details.
5. Select the "Job log" tab to display all print/copy activity for the user.

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6. Select the “Transaction History” tab and verify that the cost of the photocopying was deducted from the user’s account.

Transaction date ▼	Transacted by	Amount	Balance after	Transaction type	Comment
Apr 5, 2011 3:12:19 PM	[system]	-$0.20	$9.20	Printer Usage	
Apr 5, 2011 3:08:05 PM	admin	$9.40	$9.40	Manual adjustment	

3.3 Scenario 2: Copying with account selection

Copying can be allocated to “shared accounts” that represent departments, projects or cost centers. This is commonly used by staff in academic organizations to allocate printing to departments.

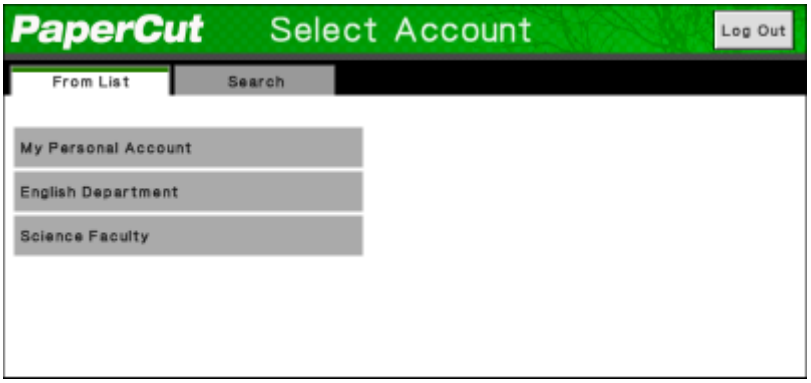
NOTE: If you are using the PaperCut embedded application for Sharp OSA versions earlier than 3, displays will look differently. Refer to appendix 0.

Firstly some test accounts should be created:

1. Log into PaperCut, select the “Accounts” tab.
2. Select the “Create account” action link on the left.
3. Enter an account name “Science Faculty”.
4. Press “Apply”.
5. Select the “Security” tab and allow all users to access that account by adding the “All Users” group.
6. Repeat the process to create another few accounts.

At the photocopier:

1. Log in using username and password as ‘testuseradvanced’.
2. The next screen will display the account selection options. Select an account to allocate copying to. E.g. “Science Faculty”.



3. At this point the copier will be enabled for usage. Follow the onscreen instructions and perform some test copying (i.e. press “OK” then perform a copy as normal).

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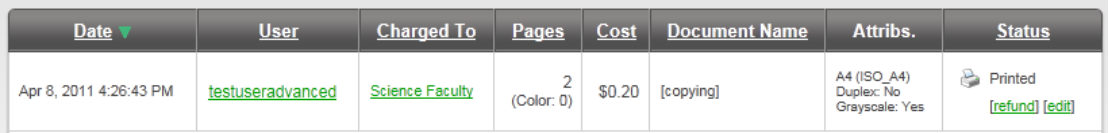
4. Once completed copying press the “LOGOUT” button on the device to return to the Welcome screen.

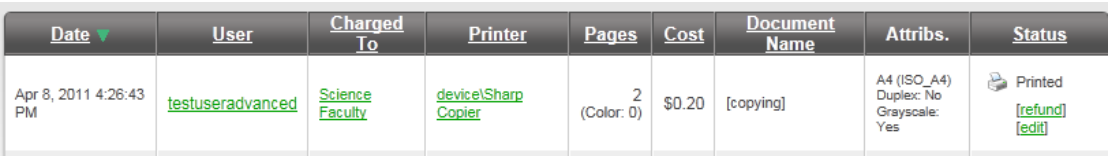
In the PaperCut administration interface verify that the copier activity was recorded and the user’s account was deducted.

1. Log in to the PaperCut administration interface.
2. Select the device from the “Devices” tab.
3. Select the “Job log” tab. This will list all recent copying activity on the copier. The copying just performed as the test user should be listed.



Date ▼	User	Charged To	Pages	Cost	Document Name	Attribs.	Status
Apr 8, 2011 4:26:43 PM	testuseradvanced	Science Faculty	2 (Color: 0)	$0.20	[copying]	A4 (ISO_A4) Duplex: No Grayscale: Yes	Printed [refund] [edit]

4. Verify the details of the job (i.e. that the job was charged to the selected account).
5. In the log details, click on the Account name to view the user’s account details.
6. Selecting the “Job log” tab will display all print/copy activity for the account, and will show the test photocopying that was performed.



Date ▼	User	Charged To	Printer	Pages	Cost	Document Name	Attribs.	Status
Apr 8, 2011 4:26:43 PM	testuseradvanced	Science Faculty	device\Sharp Copier	2 (Color: 0)	$0.20	[copying]	A4 (ISO_A4) Duplex: No Grayscale: Yes	Printed [refund] [edit]

3.4 Scenario 3: Print release

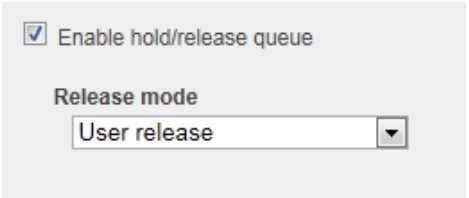
The embedded application may also be used for print release. For a full description of PaperCut hold/release queues and release stations, please see the PaperCut manual.

NOTE: If you are using the PaperCut embedded application for Sharp OSA versions earlier than 3, displays will look differently. Refer to appendix 0.

Skip this scenario if hold/release queues will not be used at your site.

To perform print release testing a hold/release queue must be enabled:

1. In PaperCut, select the “Printers” tab.
2. Select a printer that will be used for testing.
3. Enable the “Hold/release queue” option.



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4. Press OK/Apply to save the changes. All printing to this queue will now be held until released by a user.

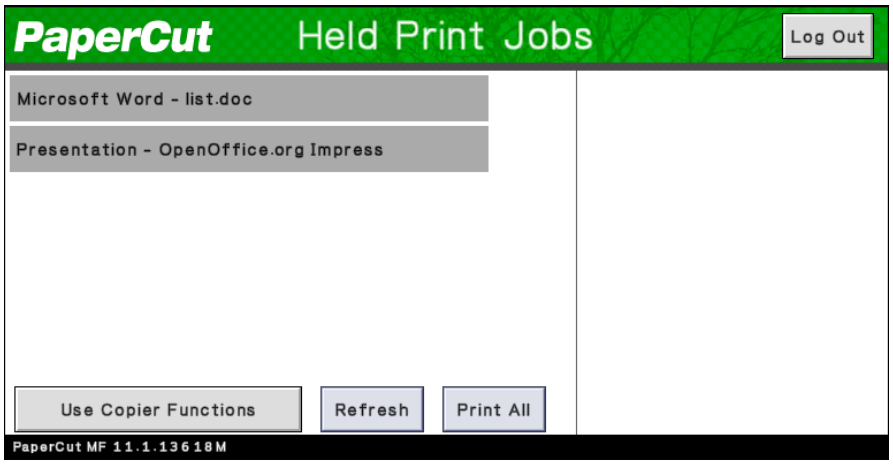
The photocopier device must also be enabled as a “Print Release Station”:

1. In PaperCut, select the “Devices” tab.
2. Select the MFD device.
3. Under “Device function” tick “Enable print release”.
4. Select the print queue that was enabled for hold/release above. The device will allow jobs on the selected queues to be released.

5. Press “OK” to save.
6. Login to a computer workstation as ‘testusersimple’.
7. Print a few jobs to the print queue that was configured above. The jobs will be held in the hold/release queue.
8. Confirmed that the jobs are held, by checking that the jobs are listed in the “Printers -> Jobs Pending Release” page.
9. Confirm that the username is ‘testusersimple’.

At the photocopier:

1. Log in using username and password as ‘testusersimple’.
2. The list of held print jobs is displayed.



3. Select the job to release by pressing on the job. Details of the job will be displayed on the right side of the screen.

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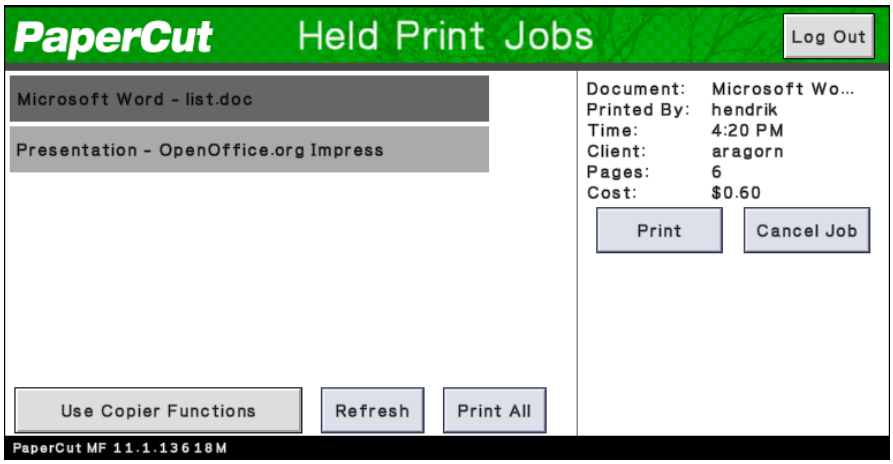
4. Confirm the release of the print job by pressing the “Print” button below the details.



5. The job will then print.
6. Try cancelling a job, by selecting it and then selecting the “Cancel Job” button.
7. The job will be cancelled, and will not print.

3.5 Scenario 4: Scanning and faxing

Sharp devices can also scan documents and send them by email. If a phone line is attached, they can send faxes. You can enable tracking scanning and faxing. Users can be prevented from scanning or faxing when they are out of credit.

To enable tracking of scans and faxes:

1. In PaperCut, select the “Devices” tab.
2. Select the MFD device.
3. Under “Device function” tick “Track & control scanning” and tick “Track & control faxes”.
4. Select the charging type “advanced” in both cases and set some numbers for page costs and thresholds. The cost after the threshold should be lower than the standard cost as it represents a volume discount. As an example, the screen shot below shows that the first page of a fax is charged at $0.20 and any subsequent page at $0.10.

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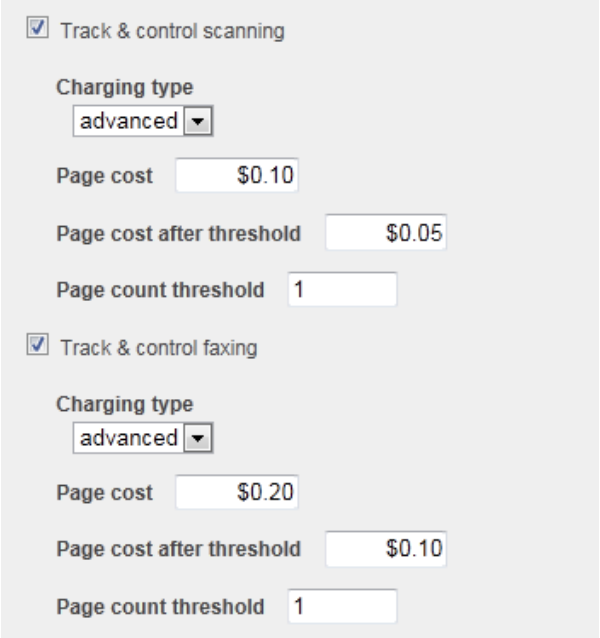
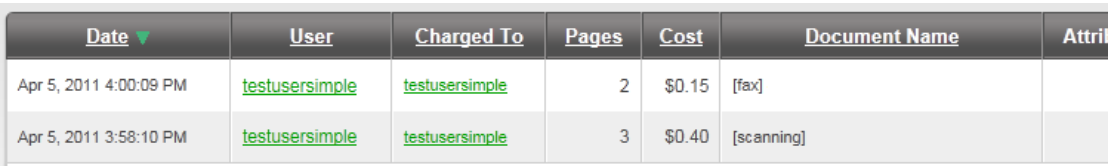


At the photocopier:

1. Log in using username and password as ‘testusersimple’.
2. At this point the copier will be enabled for usage (if the release station is also enabled, then select “Use Copier Functions” to enable the copier).
3. When the copier becomes enabled, it will show the copy settings screen. Scanning and faxing are activated by pressing the “IMAGE SEND” button on the panel. Please refer to your copier manual on the details of scan and fax operations.
5. Once completed scanning and faxing return to the copy screen by pressing the “COPY” button on the device panel and then press the “LOGOUT” button to return to the Welcome screen.

In the PaperCut administration interface verify that the scan and fax activities were recorded and the user’s account was deducted. This can be done as follows:

7. Log in to the PaperCut administration interface.
8. Select the device from the “Devices” tab.
9. Select the “Job Log” tab. This will list all recent activity on the copier, including copying, scanning and faxing. The jobs just performed as the test user should be listed. Verify the details of the jobs that were just performed.



Date ▼	User	Charged To	Pages	Cost	Document Name	Attri
Apr 5, 2011 4:00:09 PM	testusersimple	testusersimple	2	$0.15	[fax]	
Apr 5, 2011 3:58:10 PM	testusersimple	testusersimple	3	$0.40	[scanning]	

10. Click on the user’s name in the user column to view the user’s account details.

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11. Select the “Job log” tab to display all activity for the user.
12. Select the “Transaction History” tab and verify that the cost of the scans and faxes was deducted from the user’s account.

Transaction date ▼	Transacted by	Amount	Balance after	Transaction type	Comment
Apr 5, 2011 4:00:09 PM	[system]	-$0.15	$8.65	Printer Usage	
Apr 5, 2011 3:58:10 PM	[system]	-$0.40	$8.80	Printer Usage	

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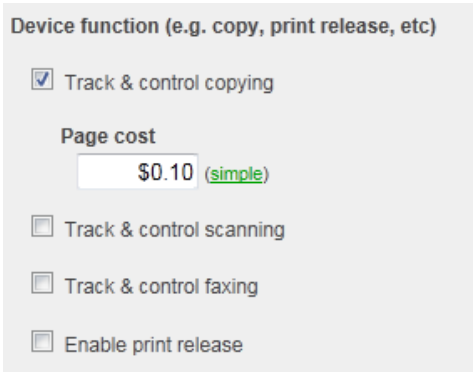
4 Configuration

After completing the Installation section and registering the device with PaperCut, it will have been configured with reasonable default settings that are suitable for most environments. This section covers how to change the default settings. All the following settings are available via the device's 'Summary' tab in the PaperCut administration interface.

4.1 Device Function

The device function setting under 'External Device Settings' defines which functions will be available on the device and how it will be used. Not all function settings are supported on all devices.



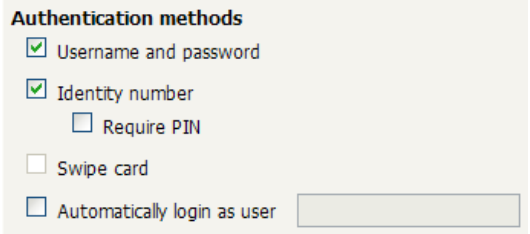
Each device function is discussed in the following table.

Device Function	Description
Track & control copying	The device will track walk-up off-the-glass copying and on-device printing.
Track & control scanning	The device will track scanning such as scan-to-email or scan-to-file.
Track & control faxing	The device will track the sending of faxes.
Enable release station	The device will act as a print release station.

4.2 Authentication Methods

PaperCut supports a number of different ways to authenticate users who walk-up to the devices to perform copying. The default authentication method is username and password authentication.

The available authentication methods can be modified in the 'External Device Settings -> Authentication methods' section.



Authentication methods available for a device

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Not all authentication methods are supported on all devices. A grayed-out option indicates that the option is not supported on this device.

Each authentication method is discussed in the following table.

Authentication Method	Description
Username and password	The user may use their domain/network username and password to log into the device.
Identity number	The user may log in with their identity number. Identity numbers are convenient when usernames are long or cumbersome to enter. For example, rather than entering a username like 'john.smith.001', it may be more convenient to enter an employee ID of '1234'. See the PaperCut user manual for information about user identity numbers, including importing identity numbers from an external source.
Identity number -> Require PIN	When a user logs in with their identity number, they must also provide their associated PIN. This provides additional security for identity number logins.
Swipe card	The user may log in by swiping a card (e.g. magnetic strip, smart card, RFID). See the PaperCut user manual for information about user card numbers, including importing card numbers from an external source.
Swipe card -> Require PIN	When a user logs in by swiping a card, they must also provide their associated PIN. This provides additional security for swipe card logins.
Swipe card -> Enable self-association with existing user accounts	Users can swipe cards previously not used or registered at the device with PaperCut and will be prompted for their username and password. The swipe card can then be used at subsequent logins. See chapter 5.4 for advanced configuration of this function.
Automatically login as user	Specifies that this device should always automatically log in as the given user. This option overrides all other authentication methods

Description of authentication methods

4.3 Shared Account Selection

Shared account selection options at the MFD mirror the options presented in the PaperCut client print popup. The options available include:

- Select from a list of shared accounts
- Search for shared accounts by keyword
- Select account using PIN/Code

The options available to each user, as well as account security access, will mirror the same options available when the user prints. "Select from list" and/or "Select using PIN/Code" are controlled at the user–level via the *User Details* page. Account security (which accounts users have access too) are control via the *Security* tab on each account.

Note: The search option will only appear if the account list is long. Short lists of only a few accounts will not list a search option.

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4.4 Shared Account Advanced Options

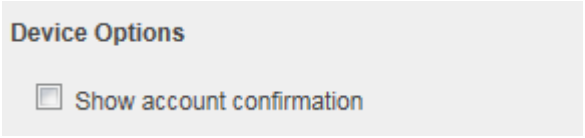
The shared account advanced options at the MFD mirror the options presented in the PaperCut Advanced Account Selection client print popup. The options available include:

- Add a comment to the copy/scan/fax/device print jobs made during the copier session.
- Enable or disable invoicing of to the copy/scan/fax/device print jobs made during the copier session.

4.5 Account Confirmation

When logging into the device for copying, scanning etc., the embedded application will display a confirmation of the selected account that usage will be charge to. This will be shown even if usage is automatically charged to a personal or shared account.

While providing additional assurance to the user, users may wish to skip this additional step for the sake of expediency. Deselecting the option “Show account confirmation” will disable the account confirmation for all users.



4.6 Customizing Text and Messages

PaperCut allows some text that appears in the device to be customized. The custom text might include instructions or terminology that is more appropriate for the site. An example of text that is customizable is the “welcome text” that displays before the user logs in to the device.

The text can be customized by editing the device configuration from the PaperCut administration interface. For more details see the Advanced Configuration section.

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5 Advanced Configuration

5.1 Config Editor

The common configuration options for a device in PaperCut are available on the device's 'Summary' tab, and are discussed in more detail in the Configuration section. This section covers the more advanced or less common configuration options which are available via the 'Advanced Config' tab in the device details screen.

Config name	Description
ext-device-msg.welcome-text	The text displayed on the 'welcome screen' (the screen displayed after pressing 'Start' from the ready screen). This text can be used to provide specific information about logging in to the device. Use "\n" to create a new line. Default: DEFAULT (uses the default application text).
ext-device-msg.login-text	The text displayed straight after logging in. (Sharp OSA 3 only)
ext-device.header.color	See chapter 5.3
ext-device.header.textcolor	See chapter 5.3
ext-device.inactivity-timeout-secs	Defines how long to allow a user between key presses before they are automatically logged out. Default: 60
ext-device.sharp_osa.acl-deny-access	This setting defines the functionality that is not available to a regular (non-admin) user. The functions disabled by default represent methods a user could use to bypass the tracking and accounting process. Administrators have access to all features. Default: SETTINGS.SYSTEM-SETTINGS,SETTINGS.WEB-SETTINGS
ext-device.sharp_osa.deny-multiple-jobs	Sharp OSA devices have the capability to queue up multiple off-the-glass jobs from the same user (e.g. the user starts one copy job, then queues another, which will start after the first one finishes). Because of the way print/copy jobs are accounted for with the OSA platform, this presents an opportunity to perform more copying than the user's balance would allow for. Users who have a restricted balance (e.g. a quota) will be restricted from queuing multiple copy jobs. Only one job can be started and it must complete before a new one is started. Uses with an unrestricted account (or select an unrestricted shared account) are not restricted to a single job. For security reasons these setting defaults to on. Default: Y (Yes)
ext-device.sharp_osa.limit-reference.duplex and ext-device.sharp_osa.limit-	PaperCut will deny device access to restricted users who do not have enough balance to copy. To determine if a user has enough balance to copy a reference copy is required. By default PaperCut checks if the user has enough balance to copy one single sided Letter (North America) or A4 (worldwide) page. In some situations it may be desirable to change the reference copy, such as when the device allows smaller page sizes like A5.

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reference.paper-size	Default for ext-device.sharp_osa.limit-reference.duplex: N (No) Default for ext-device.sharp_osa.limit-reference.paper-size in North America: Letter Default for ext-device.sharp_osa.limit-reference.paper-size worldwide: A4
ext-device.sharp_osa.max-expected-job-time-secs	When a user performs a job at a Sharp OSA device PaperCut will wait for the device to call back and report that the job has finished before the job is logged. If the device does not call back for some reason (e.g. due to a network failure), PaperCut will fall back to a polling mode and begin to regularly query the device for the job status. This setting controls the amount of time (in seconds) PaperCut will wait for the device to call back before switching to polling mode. Default: 600
ext-device.card-no-regex	See chapter 5.4 “Configuring Swipe Card Readers”
ext-device.card-self-association.use-secondary-card-number	Select whether user self-association should occupy the primary or secondary card number. It overrides the global setting unless the keyword "GLOBAL" is specified. This is useful when there is a mix of different non-configurable card readers that read different numbers from an ID card. Set to "Y" to use the secondary card number, "N" to use the primary card number. Default: "GLOBAL" to defer to the global configuration option.
ext-device.sharp_osa.show-welcome	Set this to “N” to skip the welcome screen that shows instructions to the user and asks them to press “Start”. The device will immediately show whatever authentication options have been configured except when auto-login has been configured in which case the setting will be ignored and the start screen will always show.
ext-device.sharp_osa.allow-on-device-print-for-restricted-users	Set this to “Y” to allow restricted users to print from the copier. This includes printing of documents retrieved from the copier disk drive, from USB sticks inserted in the copier, from the copier’s network folder and from FTP (for copiers that have these features). If this is not set to “Y” then only unrestricted users will be allowed to print from these sources.
ext-device.sharp_osa.skip-release-screen-when-no-jobs	Set this to “Y” to skip the print release screen if there are no jobs waiting. This is useful for devices used mostly for copying and rarely for print release. Using this option on devices commonly used for print release is not recommended as users may be confused if they expect to see the print release screen but it is skipped. Default: “N”.
ext-device.sharp_osa.create-limit-jobs	Set this to “Y” to create “Limit” jobs on the MFP when copying, scanning or faxing jobs would cause a PaperCut Restricted user’s PaperCut balance to be exceeded. Pre-OSA4 MFPs always do this so this flag has no effect for them. This flag could be used to give consistent behavior across OSA4 and pre-OSA MFPs.

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5.2 Additional Options for Sharp OSA versions earlier than 3

ext-device-msg.copier-enabled-text	The text displayed on the 'copier enabled screen' (the screen when the device is ready for use/copying). This can be used to provide specific information about using the device. Use "\n" to create a new line. Default: DEFAULT (uses the default application text).
ext-device.sharp_osa.start-with-card	Set this to "Y" to skip the welcome and login choice screens and start from the card swipe login screen. This will only take effect if card login is enabled. If auto-login has been configured this setting will be ignored and the welcome screen will show.
ext-device.sharp_osa.swipe_card_message	When asking for a swipe card to be swiped through an attached card reader, the Sharp device will display the on-screen message "Please swipe card and press OK". This option lets you specify another message up to 30 characters in length. This may be necessary e.g. when your card reader attaches a carriage return character to the card number in which case it is not necessary for the user to press the OK button. Default: DEFAULT (uses the default application text).
ext-device.sharp_osa.accounts-initial-tab	Set this to "LIST", "SEARCH" or "CODE" to make the Account Selection screen start on the From List, Search or By Code tab respectively. If you have many Shared Accounts then you may wish to set this to "SEARCH". An example of this would be legal firms who use Shared Accounts for matter codes. Default: "LIST"
ext-device.sharp_osa.1byte-keyboard	Set the default soft keyboard to single-byte for double-byte languages, such as Chinese and Japanese, for the following input fields: username, id (if not masked), account search, account code. "Y" enables this option. "N" disables this option. "DEFAULT" selects the factory default. The factory default is currently to disable this feature. This may change in the future based on feedback from users of double-byte languages Default: "DEFAULT"

5.3 Customizing the Application Logo

5.3.1 Sharp OSA 3: Customizing the header logo and colors

The green header of each screen of the embedded application can be replaced with a custom logo and custom header colors. For the logo, place a PNG image named "logo.png", not higher than 45 pixels and not wider than 200 pixels, into a directory called "server/custom/web/device/sharp" in PaperCut's installation directory. If the subdirectory "device" and/or the directory "sharp" contained therein do not exist under "server/custom/web" then create them first.

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The header colors are defined in the “Advanced Config” tab in the device details screen, see Config Editor. The options to change are:

- ext-device.sharp_osa.header.color – the background color (type DEFAULT for the default setting of dark green)
- ext-device.sharp_osa.header.textcolor – the text color (type DEFAULT for the default setting of white)

The colors are specified using the hexadecimal web/HTML notation (#RRGGBB) where “RR” is the red component, “GG” is the green component and “BB” is the blue component.

5.3.2 Earlier Sharp OSA versions: Customizing the welcome screen logo

On power on, the Sharp device displays PaperCut’s logo on the welcome screen. This image can be replaced with another image. In order to do so, a GIF file named “background.gif” has to be placed into a directory called “server/custom/web/device/sharp” in PaperCut’s installation directory. If the subdirectory “device” and/or the directory “sharp” contained therein do not exist under “server/custom/web” then create them first.

The image has to be a black-and-white GIF file for devices with a black-and-white screen or a color GIF file for a device with a color screen. Some newer devices also support animated GIF files. The maximum size for the image is 640 x 190 pixels for devices with a half-VGA (small) screen and 630 x 336 pixels for devices with a full-VGA (large) screen.

5.4 Configuring Swipe Card Readers

See Appendix A for information on card reader compatibility and supported devices.

Swipe cards contain numbers used to identify users according to the card number configured in the User Details screen under “Card/Identity” number. Some readers report information in addition to the number encoded on the card, such as checksums. PaperCut can treat these cases in three ways:

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Card Number Needs No Conversion

- A typical case is the checksum being reported after the card number, separated by an equals sign, such as in `5235092385=8`. PaperCut can handle this case by default; it will extract the number before the equal sign as the card number: `5235092385`.

Regular Expression Filters

- For some cases, a "regular expression" *may* be required that will filter the card number from the complete string of characters reported by the card reader. Documentation on regular expressions can be found on the Internet, e.g. at www.regular-expressions.info.
    - The regular expression must be fashioned so that the card number is returned as the first match group.
    - Usually one regular expression will be used for all the devices managed by PaperCut; this must be entered in the "Config editor (advanced)" which you will find on the Options tab under Actions. The key is called "ext-device.card-no-regex".
    - The global setting however can be overridden on a per-device basis: The key "ext-device.card-no-regex" can also be found on the " Advanced Config tab in the device details screen. This setting will override the global setting unless the keyword "GLOBAL" is specified.
    - PaperCut developers will gladly assist in producing a regular expression when supplied with a few sample outputs from your card reader. Please contact PaperCut support.
    - If you would like to write your own regular expressions, here are some examples:
        - Use the first 10 characters (any character): `(.{10})`
        - Use the first 19 digits: `(\d{19})`
        - Extract the digits from between the two "=" characters in "123453=292929=1221": `\d*=(\d*)=\d*`

Card Number Format Converters

In addition to extracting parts of the card numbers using regular expressions, converting numbers from one format to another is a common requirement. For example a card reader may report in hexadecimal format, while the number stored in the source (e.g. Active Directory) is in a decimal format. PaperCut includes a number of inbuilt converters to assist here.

Note: Many card readers are configurable - the number format can be changed at the hardware level via utility or configuration tools. PaperCut's software-level converters are there to support card readers that don't offer this level of configuration, or where a global software-level conversion is a better choice. For example it may be quicker to do the conversion in PaperCut rather than manually reprogram 100+ readers!

Like regex's, the convertors may be defined on either a global (all devices) or on a per-device basis.

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To set globally:

- Options -> Actions -> Config Editor
- Search for “ext-device.card-no-converter”
- Enter the name of the required converter (see table below) and click **Update**

To set at the device level:

- Devices -> [select device] -> Advanced Config Editor
- Search for “ext-device.card-no-converter”
- Enter the name of the required converter (see table below) and click **Update**

Standard Converters

Convertor	Description
`hex2dec`	Convert a hexadecimal (base 16) encoded card number to decimal format. Hexadecimal numbers usually contain 0-9 and A-F. This will convert “`946EBD28`” to “`2490285352`”.
`dec2hex`	Convert a decimal encoded card number to hexadecimal format. This will convert “`2490285352`” to “`946EBD28`”.
`ascii-enc`	Unpack an ASCII encoded card number string. E.g. given the number “`3934364542443238`”, the ASCII code “`39`” is converted to 9, “`34`” -> 4, “`45`” -> E, with the entire number resulting in “`946EBD28`”.
`javascript:<path>`	Advanced: Define a custom conversion function in JavaScript (see below)

It is possible to chain or pipeline converters by delimiting with a pipe (|). For example, `ascii-enc|hex2dec` will first unpack the encoded ASCII number then convert it to a decimal.

Tip: Not sure which converter to use? Often trial and error is a good approach. After presenting a card, the number will appear in an application logger message with conversions applied (assuming the card is unknown to the system). Try different converters and inspect the resulting numbers in the application log.

Using custom JavaScript
If the inbuilt converter functions are unable to meet the requirements, it is possible to define your own function using JavaScript. This is an advanced exercise and it is expected that any implementer be familiar with programming and JavaScript. To implement your own converter:

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1. Create a file text file `[install-path]/server/custom/card.js`
2. Define a single JavaScript function in this file called “convert” It should accept and return a single string. Here is a trivial example:
```
function convert(cardNumber) {
   return cardNumber.substring(3,10).toLowerCase();
}
```
3. Enter a converter in the form: `javascript:custom/card.js`

Tip: Check the file `[install-path]/server/log/server.log` when testing. Any scripting errors will be displayed as warning messages in the log.

Tip: A Javascript script may also be included in the pipeline. For example `ascii-enc|hex2dec|javascript:custom/card.js`

Other advanced notes

- If *both* a regular expression and a converter are defined, the regular expression is applied first. This means a regular expression can be used to clean up the input (e.g. remove checksum or delimiters) before passing to a converter.
- In some special situations a custom JavaScript implementation may not be enough. For example there may be a requirement to use a 3rd party system to decrypt the number. PaperCut includes an advanced plugin architecture that the PaperCut Software development team uses to implement these advanced converters. Please contact support to discuss development options and costs.

5.5 Configuration of RFIdeas pcSwipe magstripe reader

For the RFIdeas magstripe reader to work with the PaperCut embedded application on the Sharp LCD, the card reader must be re-configured using the pcSwipeConfig utility available from the RFIdeas web site. Use this utility to configure the reader as pictured in the screenshots below.

- Enable fields 1 & 2 as shown and disable all other fields.
- Make other changes has highlighted in RED.
- Press the “Flash” button to save configuration to the card reader.

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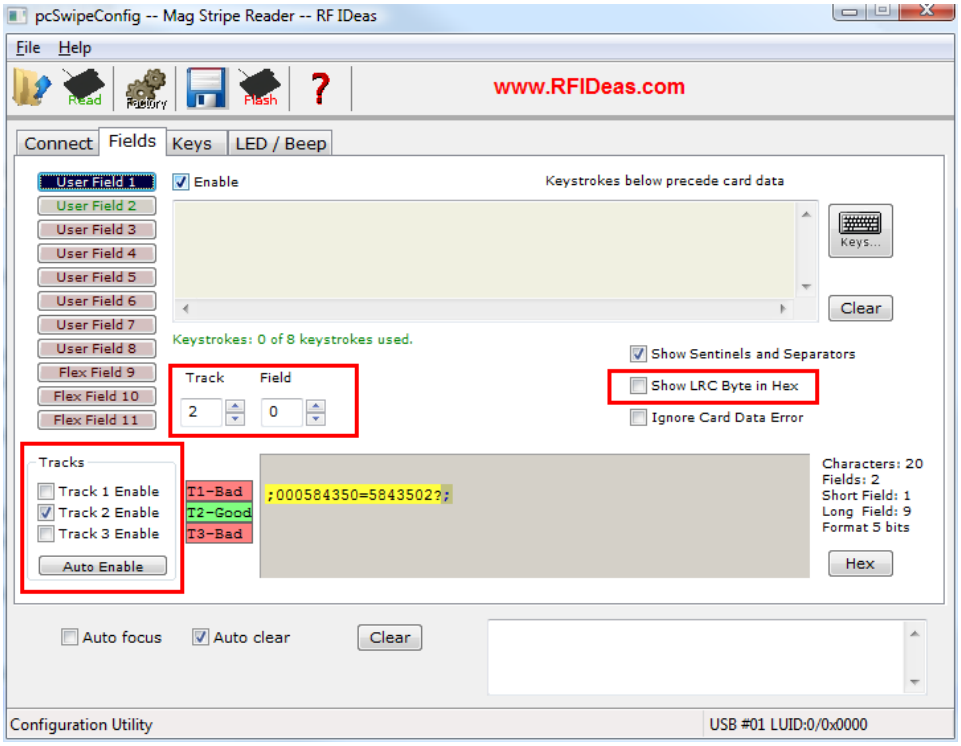

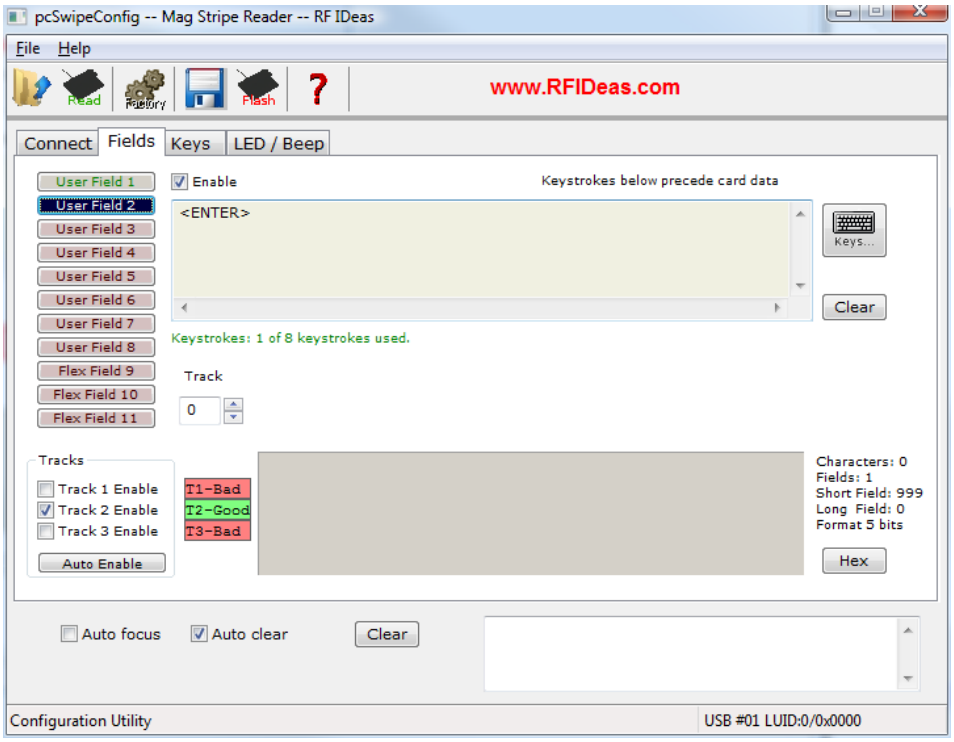

5.6 Offline Mode

Some Sharp OSA devices support “Offline Mode”, which enables the device to be used if the connection to the PaperCut Server is down.

This is a Sharp feature and must be enabled by a qualified Sharp technician. PaperCut’s role is to give the device “permission” to use Offline Mode and to specify an amount of time to wait from the time the link goes down until Offline Mode is entered. By, default this wait time is 5 minutes, and can be changed using the

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configuration key: `ext-device.sharp_osa.offline-awake-interval-minutes`.

A shorter time may be more convenient, but would make it easier to bypass PaperCut control by removing the network cable before making copies. A longer time would increase protection against this behaviour.

Currently PaperCut does not track print or copy jobs made whilst the device is in Offline Mode.

6 Known Limitations and Security

The Sharp Embedded Software environment (OSA) has a number of limitations that have impacted on functionality and security.

6.1 Zero Stop when Copying

In an ideal implementation, PaperCut would be able to control exactly how many pages a user can copy and always prevent the user from overdrawing their account. The OSA API offers the ability to limit page counts, but has the following limitations:

1. The copier does not seem to stop immediately when limits are reached. There is a small delay meaning that users can overrun their account below zero by about 4 pages.
2. Ideally PaperCut would be informed of the user selection prior to copying and be able to accept/reject the job at this point. Current Sharp API implementations prevent this level of pre-approval.

The implications of this limitation are:

- Restricted users with credit for X pages may be able to select and complete a job of X + 4 pages. They will still however be charged for X + 4 pages leaving a negative account balance.
- A user may only have credit for X pages and copies a document with X + n pages. The job will stop half way through at X pages. An ideal solution will inform the user of insufficient credit before the job starts.

The PaperCut Software development team has passed some suggestions for future API design to the Sharp OSA team. We hope these are implemented in future releases.

6.2 Zero Stop when Scanning and Faxing

Sharp devices currently do not stop scan jobs or fax jobs mid-way when users run out of credit. Instead, users can complete the scan or fax job and possibly incur an overdraft in their accounts. Users are then prevented from starting further jobs of any kind.

6.3 Bypassing the System

It's important that the administrators take care to prevent users from bypassing the system and directly accessing the copier. Likewise it's also important that administrators know how to bypass/disable the system if direct copier access is required – say to change advanced system settings. Administrations should take the following precautions:

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- The copier's built in admin password should be changed and always kept secure.
- The power and network cable should be securely connected. The system is designed to be robust. If the power or network is pulled during a copy job, the server will detect this and attempt to account for jobs when the connection is restored. There may however be cases not yet encountered where this recovery may not work (e.g. if the copier resets itself back to factory defaults).

To disable the system (remove the login screen) for administrator level access, disable External Accounting Application as configured in Section 2.5.

6.4 Server Restarts

If the PaperCut Application Server is restarted while a copy session is in progress, details of this session may be lost. Administrators should be aware of this limitation and limit server restarts during periods of high activity.

6.5 Interface

The development team is aware of a number of design inconsistencies in the interface:

- Limitation on colors and formatting
- Button placement is inconsistent or non-intuitive (OK buttons located on top-right-hand corner rather than bottom-right-hand corner).
- Interface elements appear slightly off centre.

These limitations are within the Sharp OSA API. PaperCut Software has expressed the need for improved interface control and layout to Sharp engineers and hopes that this will improve in future releases.

6.6 "Limit" Jobs

On pre-OSA4 MFPs when PaperCut Restricted users exceed their PaperCut account balances while copying, scanning or using other MFP functions, their current job is stopped and put in the "Limit" state. Limit jobs remain at the start of the MFP job queue from then on and need to be deleted from the MFP LCD before other jobs can be processed.

On OSA4 and later MFPs, when PaperCut Restricted users exceed their PaperCut account balances while copying, scanning or using other MFP functions, their current job will be deleted. In these cases the job will not be completed.

OSA4 and later MFPs can be made to create Limit jobs like pre-OSA4 devices by going to the PaperCut administration interface Devices tab, selecting the device then going to the Config Editor tab and setting "ext-device.sharp_osa.create-limit-jobs" to "Y".

7 On-Device Printing

Many Sharp MFDs allow users to print from

- USB sticks inserted into the MFD.
- The MFP's network folder (also called SMB pull printing).
- FTP (also called FTP pull printing).

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- Jobs retrieved from the MFP's hard disk.

PaperCut MF version 10.5 and later supports tracking of USB print jobs, FTP pull print jobs, SMB pull print jobs and retrieved print jobs.

7.1 Enabling On-Device Printing

All unrestricted PaperCut users are allowed to perform on-device printing. Users can be given unrestricted rights by going to the PaperCut administration interface Users tab, selecting the user, going to the User Details tab and un-checking the Restricted checkbox.

In addition a PaperCut Sharp device can be configured to allow all users to perform on-device printing. This can be done by going to the PaperCut administration interface Devices tab, selecting the device then going to the Config Editor tab and setting "ext-device.sharp_osa.allow-on-device-print-for-restricted-users" to "Y".

However, if restricted users are allowed on-device printing they may overrun their account as on-device printing cannot be blocked once the user is logged in.

As a measure of security, users with zero or negative balance can be prevented from logging into the device in the first place, to do so enable tracking of all of copying, scanning and faxing and set a page price for each greater than zero.

7.2 Tracking On-Device Printing

On-device print jobs are tracked in the device's job log as Copy jobs. They can be distinguished from regular print jobs by the comment "USB Print", "SMB Print", "FTP Print" or "Retrieved Print".

On-Device print jobs are charged at the same rate as Copy jobs.

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8 FAQ & Troubleshooting

The "External Accounting Application" menu is not listed in the copier interface?

This may indicate that the OSA option is not enabled on the device. OSA is an optional add-on provided by Sharp. Please contact your hardware vendor to have this option enabled.

What is the IP address of my PaperCut Server?

Use operating system command-line tools such as ipconfig or ifconfig to determine this.

Can I use a hostname rather than an IP address in the URL's when configuring the "External Account Application" options?

Using a hostnames relies on the MFD using your DNS and ensuring that your DNS is correctly configured. The quickest failsafe option is to use the server's IP. If you have advanced networking skills, you may wish to investigate using a hostname.

Why is the error "Could not access accounting server. Contact your administrator." displayed after first configuration?

This can be caused by inputting an incorrect IP address, incorrect DNS entry or incorrect URL during configuration. Please make sure that there are also no spaces or similar characters in the URL.

The PaperCut start screen does not display after I reboot the device?

There are two common causes of this problem:

Networking Issues: Ensure that the copier is correctly connected and is able to contact the PaperCut Server. E.g. make sure that there is no firewall between the copier and the server. Tools such as ping may help with this diagnosis.

Configuration Issues: Re-check configuration settings including the URL's enter in the Sharp MFD web interface.

I see an error on the Sharp touch screen?

This may indicate a configuration issue, or maybe a software bug. Re-check your settings and restart the MFD (Via the Top Level page in the MFDs web interface). If problems continue, contact PaperCut Support.

My users have symbols in their passwords and/or it's difficult to enter their usernames. What options do I have?

The Shift or Mode button will offer addition symbols. Use of this is however cumbersome. You may wish to instruct your users to change their network passwords so they only contain standard characters. Another option is to enable the ID/Pin authentication option. This may be used in addition or as a replacement to username and password authentication and can be limited to numbers only.

I have thousands of accounts representing my clients. Will the system handle this?

Yes. We have designed the system to handle thousands of Shared Accounts. Users with many accounts will also be presented with some "power options" to help them find accounts including keywords based search.

Can I change the interface?

The OSA framework limits some design elements. We have offered the following

- The ability to change the welcome and copier-enabled text.
- The ability to change the monochrome logo on the welcome screen.

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and will investigate other options. If you have a few ideas, please send them through.

When using the Config Editor, not all of the expected options are visible.

Please make sure that you have configured the correct URLs for the Application UI and Web Service as shown in Section 2.5 – Step 10. Take note of the correct URL for your specific version of OSA.

On some copiers, when the LCD screen is in power save, swiping a card does not work or asks me to associate the card with a user account.

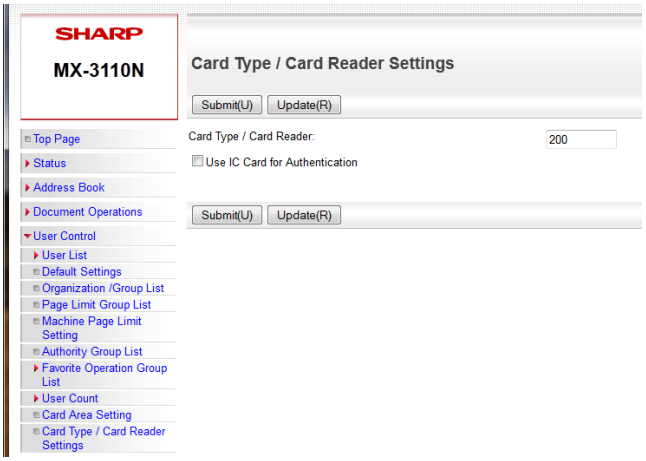
Some Sharp devices have the ability to power down the LCD but not the copier. When a card is swiped, the first character of the card number is not received.

You can configure this behavior via the User Web Interface -> System Settings -> Energy Save.

I have had a Card Reader on my copier for a while now I've just installed PaperCut but it doesn't work. I've enabled the checkbox for Card Authentication on the Devices tab.

It's been reported that if you used a card reader for the internal accounting capabilities of the device that you will need to disable the card reader functionality on the copier and then PaperCut can use it.

You can find this setting via User Control -> Card Type / Card Reader Settings. This is shown on the right.



A. Appendix: Supported Authentication Card Readers

Sharp devices support keyboard emulating USB card readers, including but not limited to:

- Elatec TWN3 prox card readers
- MAGTEK Swipe Reader Model # 21040110
- RF IDEAS AIR ID Enroll Proximity Reader Model # RDR-7081AKU

Other keyboard emulating USB card readers may work, but should be tested prior to deployment.

Supporting Card Reader authentication is as easy as:

1. Connecting a supported card reader to the device via the USB port (Note: On some devices this is hidden under a sticker on the side panel).
2. Enabling *Swipe card* as an *Authentication method* under the device's configuration in PaperCut's web interface.
3. Ensure the card number, as read by the reader, is loaded into the Card Number field in the PaperCut database (or consider using user self-association).

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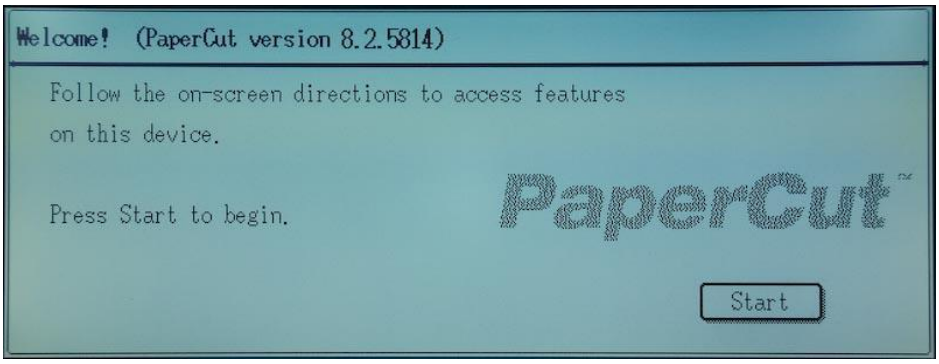
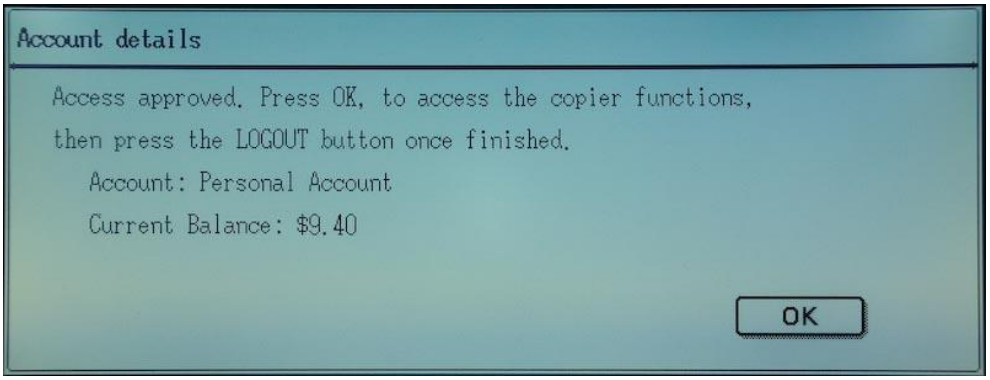
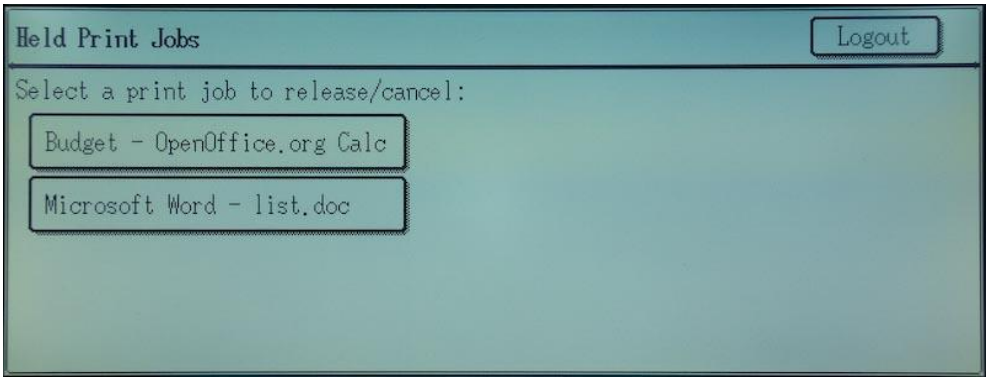
4.

B. Appendix: Screenshots of Sharp OSA versions earlier than 3

Please find a sample of screenshots from the PaperCut embedded application for Sharp versions earlier than 3 here:


Welcome! (PaperCut version 8.2.5814)
Follow the on-screen directions to access features on this device.
Press Start to begin.
PaperCut
Start


Account details
Access approved. Press OK, to access the copier functions, then press the LOGOUT button once finished.
Account: Personal Account
Current Balance: $9.40
OK



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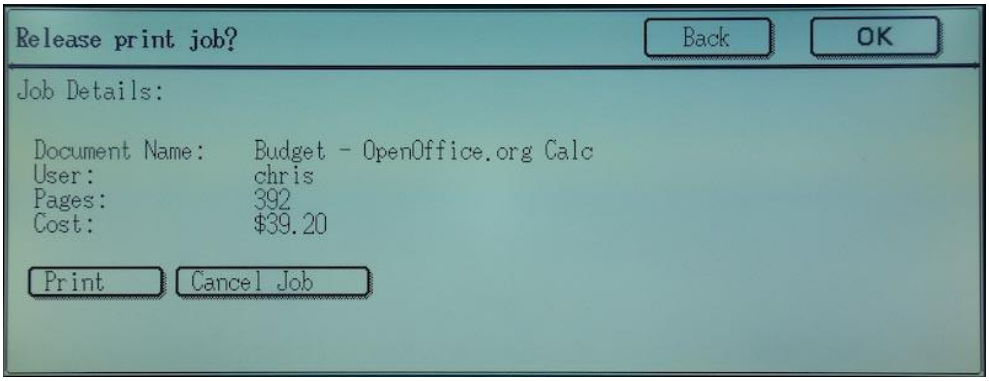
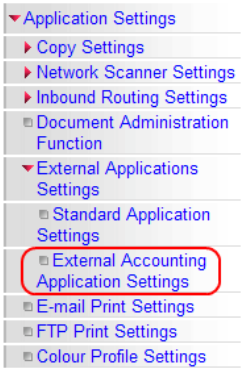
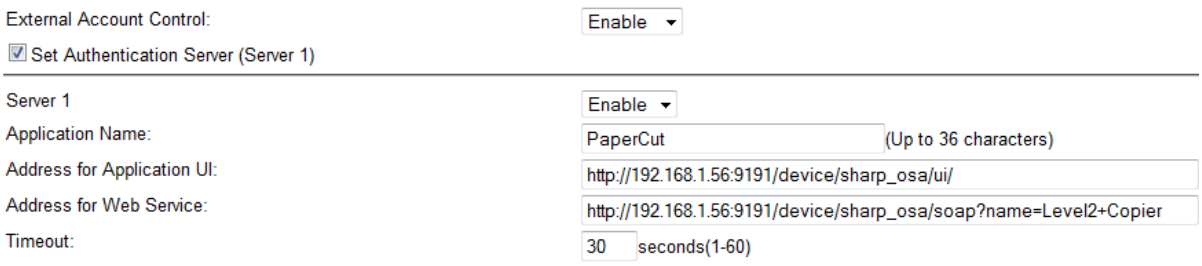


C. Appendix: Sharp External Settings for versions earlier than 3

1. Please only do these steps if you are running OSA Versions *older* than 3.
2. Log in to the copier's web interface as an administrator using a web browser (e.g.http://copier-ip/).
3. Navigate to 'Application Settings -> External Applications Settings -> External Accounting Application Settings'. This menu item will only appear if you have Sharp OSA External Accounting installed; if it does not exist contact your vendor for assistance.



4. Change the 'External Account Control' option to 'Enable'.



5. Enable the checkbox titled 'Enable Authentication by External Server' or 'Set Authentication Server (Server 1)'.
6. Enter 'PaperCut' in the 'Application Name' field.

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7. Under ‘Address for Application UI’, enter:
   http://<server-ip>:9191/device/sharp_osa/ui/
   replacing ‘server-ip’ with the IP address of the PaperCut server
8. Under ‘Address for Web Service’, enter:
   http://<server-ip>:9191/device/sharp_osa/soap?name=Level1+Copier
   where “Level1+Copier” is the name of the device that will appear in PaperCut. This may be replaced with a custom name, such as a name based on the MFD’s physical location. Using the same name as the copier’s print queue is recommended.
   IMPORTANT: Do not use spaces in the device name in the URL. Spaces may be represented by using a plus (+) character.
9. The timeout value should be set to 30 seconds. This defines how long the copier will wait before an error is displayed if the server is down or unavailable.
10. Press “Submit”, and then press “Reboot Now”. The reboot process will take 30 seconds to 1 minute.

    If you receive an error like “ERROR[5000]: Processing is in motion. This function cannot be executed.” then check the display panel of the device and ensure the “COPY” tab is selected. Other tabs may lock parts of the web admin interface.
11. Please remember to go back and continue with the Sharp Miscellaneous Settings.

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